

REMARKS

Response to the §103 Rejection of Claims 1-6, 8, 11, 12, 21, and 22

In the January 6, 2006 Office Action, the Examiner rejected Claims 1-6, 8, 11, 12, 21 and 22 under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,451,681 to Greer (hereinafter "Greer") in view of U.S. Patent Application Publication No. 2005/0023348 to Farnworth et al. (hereinafter "Farnworth").

In response, Applicants have amended claim 1, from which claims 2-6, 8, 11, 12, and 21 depend, and claim 22 to positively recite a metal cap layer that is located on at least the exposed upper surface portion of a wire bond pad and comprises "a TiN seed layer with a Ti or Al layer atop." Further, Applicants have amended claim 8 to positively recite that "the TiN seed layer has a thickness of about 500 Å or less" and that "the Ti or Al layer has a thickness less than about 10000Å." Support for such claim amendments can be found in the instant specification at paragraphs [0041].

Applicants hereby traverse the Examiner's rejections of claims 1-6, 8, 11, 12, 21, and 22 as amended herein, for the following reasons:

The cited references fail to teach or suggest in any manner a metallic cap layer that is located on at least the exposed upper surface portion of the wire bond pad and comprises a TiN seed layer with a Ti or Al layer atop.

Specifically, Greer discloses a metallic cap layer 304 or 600, which is formed of chromium (see Greer, column 6, lines 9-13 and column 4, lines 44-47) and is located on an exposed upper surface portion of a wire bond pad 312 or 508 that contains layers 200, 202 or layers 504, 506 (see Figures 3 and 6 of Greer, and also see Office Action, page 3, lines 4-8).

However, nothing in Greer teaches or suggests, either expressly or implicitly, that the metallic cap layer 600 can be modified to include a TiN seed layer with a Ti or Al layer atop.

The Farnworth reference, on the other hand, discloses a Ni/Au metallization containing a Ni layer 132 and an Au layer 134, which is directly formed over an exposed upper surface 122 of the bond pad 120 without any metallic cap therebetween (see Farnworth, Figure 5 and paragraphs [0035]-[0038]).

Nothing in Farnworth teaches or suggests incorporation of a metallic cap, much less a metallic cap comprising a TiN seed layer with a Ti or Al layer atop.

It is thus clear that Greer and Farnworth, either taken singularly or in combination, fail to teach or suggest a metallic cap layer that is located on at least the exposed upper surface portion of the wire bond pad and comprises a TiN seed layer with a Ti or Al layer atop, as positively recited by claims 1-6, 8, 11, 12, 21, and 22 of the present application.

Therefore, claims 1-6, 8, 11, 12, and 21 of the present application patentably distinguish over Greer and Farnworth.

Response to the §103 Rejection of Claim 9

In the January 6, 2006 Office Action, the Examiner rejected claim 9 under 35 U.S.C. § 103(a) as allegedly obvious over Greer in view of Farnworth, and further in view of U.S. Patent No. 4,696,098 to Yen (hereinafter "Yen").

Claim 9 depends from claims 1 and 8, and it therefore patentably distinguishes over the combination of Greer and Farnworth for the same reasons stated hereinabove for claims 1 and 8.

Yen does not disclose any metallic cap located over a wire bond pad, much less a metallic cap comprising a TiN seed layer with a Ti or Al layer atop, and it therefore cannot

remedy the above-described deficiencies of Greer and Farnworth, and claim 9 thus patentably distinguishes over the combination of Greer, Farnworth, and Yen.

Response to the §103 Rejection of Claim 10

In the January 6, 2006 Office Action, the Examiner rejected claim 10 under 35 U.S.C. § 103(a) as allegedly obvious over Greer in view of Farnworth, and further in view of U.S. Patent No. 6,174,823 to Dobson, et al. (hereinafter "Dobson").

Claim 10 depends from claims 1 and 8, and it therefore patentably distinguishes over the combination of Greer and Farnworth for the same reasons stated hereinabove for claims 1 and 8.

Dobson does not disclose any metallic cap located over a wire bond pad, much less a metallic cap comprising a TiN seed layer with a Ti or Al layer atop, and it therefore cannot remedy the above-described deficiencies of Greer and Farnworth, and claim 10 thus patentably distinguishes over the combination of Greer, Farnworth, and Dobson.

In summary, pending claims 1-6, 8-12, 21, and 22 of the present application patentably distinguish over the cited references Greer, Farnworth, Yen and Dobson, and Applicants respectfully request the Examiner to reconsider, and upon reconsideration to withdraw, the rejections of these claims.

CONCLUSION

Based on the foregoing, claims 1-6, 8-12, 21, and 22 as amended herein are in condition for allowance. Issue of a Notice of Allowance for the application is therefore requested.

If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned attorney at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,



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